UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JEAN-PIERRE DATH, LUC DELORME, JACQUES-FRANCOIS GROOTJANS, XAVIER VANHAEREN and WALTER VERMEIREN

Appeal No. 2005-2371
Application No. 09/206,216

HEARD: OCTOBER 19, 2005

Before GARRIS, WARREN, and WALTZ, Administrative Patent Judges.
WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the primary examiner's refusal to allow claims 17 through 20 and 38 through 44, the only claims pending in this application, as amended subsequent to the final rejection (see the amendment filed with the Brief, entered as noted on page 2, ¶(4), of the Answer; see also the Brief, pages 1-2). We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellants, the invention is directed to a process for the cracking of olefins in an olefin-rich feedstock

where the feedstock has been treated by selective hydrogenation to remove dienes and the cracking is accomplished under specific conditions using an MFI crystalline silicate catalyst having a silicon/aluminum atomic ratio of from 180 to 1000 (Brief, page 3). Representative independent claim 17 is reproduced below:

17. A process for cracking an olefin-rich hydrocarbon feedstock which is selective towards propylene in the effluent, the process comprising contacting a hydrocarbon feedstock having a maximum diene concentrated therein of 0.1 wt.% containing olefins having a first composition of at least one olefinic component with an MFI crystalline silicate catalyst having a silicon/aluminum atomic ratio of from 180 to 1000 to produce an effluent having a second composition of at least one olefinic component, the feedstock contacting the catalyst at an inlet temperature of from 500 to 600°C and being passed over the catalyst at an LHSV of from 10 to $30h^{-1}$, the feedstock and the effluent having substantially the same olefinic content by weight therein, and the effluent having a higher propylene content than the feedstock, wherein the dienes have been removed from the feedstock prior to the cracking step by selective hydrogenation.

The examiner has relied upon the following references as evidence of obviousness:

Glockner et al. (Glockner)	4,078,011	Mar. 07, 1978
Cosyns et al. (Cosyns)	4,347,392	Aug. 31, 1982
Colombo et al. (EP '060) (published European Patent Application)	0 109 060	May 23, 1984

Claims 17 through 20 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1 through 16 of copending Application No. 09/206,218

(Answer, page 3).[1] Claims 17-20 and 38-44 stand rejected under 35 U.S.C. § 103(b) as unpatentable over EP '060 in view of either Glockner or Cosyns (*id.*).[2]

Based on the totality of the record, including the opposing arguments in the Brief, Reply Brief, and the Answer, we *reverse* the examiner's rejection of claims 17-20 and 38-44 under section 103 essentially for the reasons stated in the Brief and Reply Brief, as well as those reasons set forth below. Since appellants have not contested or disputed the examiner's provisional rejection for obviousness-type double patenting, we summarily *affirm* this rejection.[3] Accordingly, the examiner's

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[1]We note that Application No. 09/206,218 was the subject of an appeal (Appeal No. 2005-0183), and a decision affirming-in-part the examiner's rejection was mailed on Feb. 25, 2005 (Paper No. 44). We further note that Application No. 09/206,218 issued on Oct. 4, 2005, as U.S. Patent No. 6,951,968, and thus this rejection is not now "provisional."

[2]Since it is clear that section 103(b) is not applicable in this rejection, we presume for purposes of this appeal that the examiner meant to use section 103(a) as the statutory basis for the rejection. We also note that the final Office action mistakenly listed 35 U.S.C. § 102(b) as the statutory basis for this rejection but it is clear from the record that appellants and the examiner understood this rejection to be based on obviousness under section 103 (Brief, page 5, "Issues;" final Office action dated Oct. 31, 2003, pages 3-6, especially page 3 reproducing section 103(a) of the statute). Accordingly, for purposes of this appeal, we consider this rejection as based on 35 U.S.C. § 103(a).

[3]Appellants' attorney, at the oral hearing on Oct. 19, 2005, acknowledged that the Brief and Reply Brief did not mention this provisional rejection but assumed that a terminal disclaimer had been filed which would obviate this rejection. Upon review of the image file wrapper, we find no terminal disclaimer over Application No. 206,218.

decision to reject the claims on appeal is *affirmed-in-part.*

OPINION

A. The Provisional Rejection for Obviousness-type Double Patenting

As discussed above, the examiner repeats this provisional rejection on page 3 of the Answer and appellants do not contest or dispute this rejection in either the Brief or Reply Brief (see the Brief and Reply Brief in their entirety). Accordingly, we summarily affirm the examiner's provisional rejection.

B. The Rejection under § 103(a)

The examiner finds that EP '060 discloses a process of cracking a hydrocarbon feed of C4 to C12 olefins into propylene and some ethylene by contacting the feed with a crystalline alumino-silicate catalyst having a silicon/alumina atomic ratio of greater than 175 while under reaction conditions which overlap the claimed values (Answer, page 4). The examiner recognizes that EP '060 does not specifically disclose that the feed contains dienes, nor discloses the hydrogenation of any dienes (Answer, page 5). Therefore the examiner applies Glockner or Cosyns for the teaching of processes for the selective hydrogenation of dienes from a hydrocarbon feedstock (*id.*). From

these findings, the examiner concludes that it would have been obvious to one of ordinary skill in this art at the time of appellants' invention "to have modified the EP 0109060 process by including a selective hydrogenation as disclosed by either Glockner or Cosyns because the EP process does not require the presence of dienes" and one of ordinary skill in the art would have looked to remove dienes by the prior art processes of Glockner or Cosyns "if such compounds are not desired" (*id.*). The examiner further finds that

> Even if the feedstock of Columbo comprises dienes, one of skill in the art would employ a well known hydrogenation process of either Glockner or Cosyns to remove dienes from the olefinic feedstock because it is *well known* that a large amount of dienes contained in an olefinic feedstock would depresse [sic] the overall cracking conversion and/or selectivity of the process. Answer, paragraph bridging pages 6-7, italics added.

The initial burden of establishing a prima facie case of obviousness in view of prior art references rests with the examiner. *See In re Oetiker,* 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Even though individual elements of a claimed invention may be well known, "the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.". *Lindemann Maschinenfabrik GMBH v. American Hoist*

& Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984); *see also In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "[T]here must be some logical reason apparent from positive, concrete evidence of record which justifies a combination of primary and secondary references." *In re Regel*, 526 F.2d 1399, 1403 n.6, 188 USPQ 136, 139 n.6 (CCPA 1975).

Here we determine that the examiner has not met the initial burden of establishing a case of prima facie obviousness in view of the prior art references. The examiner's finding that EP '060 does not address the subject of dienes in the feedstock (Answer, page 5; Brief, page 6) does not provide any positive teaching to remove dienes if they were found to be present in a feedstock of the same or similar process, since there is no evidence on this record that dienes would have been undesirable in the feedstock of EP '060. Furthermore, the examiner has not presented any findings of fact that Glockner or Cosyns is directed to the selective hydrogenation of dienes in the same or similar feedstock used in the conversion of higher olefins into propylene as disclosed by the process of EP '060. Glockner teaches removal of dienes from an olefin stream employed in standard alkylation processes (col. 1, ll. 7-19). Cosyns teaches removal of diene

and triene impurities in the production of pure ethylene or propylene (col. 1, ll. 7-9 and 30-32). Finally, as correctly argued by appellants (Reply Brief, page 2), the examiner has provided no factual evidence to support the contention that it was "well known" that a large amount of dienes would depress the overall cracking conversion and selectivity of the process of EP '060 (Answer, pages 6-7). *See In re Lee*, 277 F.3d 1338, 1344-45, 61 USPQ2d 1430, 1434-35 (Fed. Cir. 2002). Therefore the examiner has not established the desirability of removing dienes from the olefin feedstock in the cracking process of EP '060.

For the foregoing reasons and those stated in the Brief and Reply Brief, we determine that the examiner has not established a prima facie case of obviousness in view of the reference evidence. Therefore we cannot sustain the examiner's rejection of the claims on appeal under 35 U.S.C. § 103(a) over EP '060 in view of Glockner or Cosyns.

C. Summary

The provisional rejection of claims 17-20 under the judicially created doctrine of obviousness-type double patenting over claims 1-16 of Application No. 09/206,218 is affirmed.

The rejection of claims 17-20 and 38-44 under 35 U.S.C. § 103(a) over EP '060 in view of Glockner or Cosyns is reversed.

The decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv)(2004).

AFFIRMED-IN-PART

BRADLEY R. GARRIS)
Administrative Patent Judge)
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CHARLES F. WARREN) BOARD OF PATENT
Administrative Patent Judge) APPEALS
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